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Research Article

# EVALUATION OF ANTI PSORIATIC ACTIVITY OF KARANJIN OIL

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## ABSTRACT

Psoriasis is defined as a type of severe inflammatory and autoimmune skin disease, caused due to genetic and natural/surrounding factors and the most successful way to tackle this disease is topical treatment. To examine potency of the herbal drug in the cure of psoriasis like lesions on mice skin is the core objective of this study. Imiquimod model of psoriasis was used in the evaluation of the drug and the qRT-PCR was done to check cytokines concentration in the blood serum of psoriasis induced mice. The drug karanjin oil was proved to have anti-psoriatic activity.

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## INTRODUCTION:

Psoriasis is non curable, non contagious, itchy and painful disease. Clinical features are scaling and redness<sup>1</sup>. The cause is not known still but studies say that it is due to some genetic factor or immunological factors or biochemical process which regulates the proliferation and development of upper skin cells. Following factors aggravates psoriasis mental stress, more alcohol consumption, smoking etc<sup>2</sup>.

### Epidemiology

2-3% of world population is affected by Psoriasis. It occurs in both male and female. It is reported at birth as well as in old age and mainly seen in western countries. In India especially north india, males are more prone to psoriasis than female mainly in the age group between 30 yrs to 40 yrs of age.

### Types of Psoriasis

1. Plaque psoriasis- Most general type of psoriasis characterized by swollen red scaly bumps covered with silvery white scales.
2. Guttate- Next common type of psoriasis after plaque psoriasis, mainly seen in younger generations, characterized by small red spots.
3. Inverse- It is characterized by red non- scaly and shiny patch in the skin folds.
4. Pustular- It is a rare type of psoriasis. It mainly occurs in adults, characterized by raised pus filled bumps.

5. Erythrodermic- Rarest and most unsafe type of psoriasis characterized by red, crusty, pustular bumps all over the body.
6. Nail psoriasis- 50% of psoriasis patient have nail psoriasis, characterized by yellowish brown nails with gap between nail bed due to deposition of chalky material. Mainly seen in psoriatic arthritis patient.
7. Psoriatic arthritis- It is a type of disease in which patient is suffering from psoriasis as well as joint inflammation<sup>3</sup>.

### Pathophysiology

Being a T cell mediated disease that is characterized by uncontrolled scaling along with redness, pain and angiogenesis. The CD4+T cells stimulated the disease by complexing with antigen-presenting cells in the skin, which provokes the CD8+ T cells in the epidermis. This complex between CD4+ T cells, CD8+ T, dendritic cell and keratinocytes gives rise to cytokine soup which mainly consists of T helper cell type cytokines such as IL-1 $\beta$ , IL-12, IFN- $\gamma$  and TNF- $\alpha$ . Thus the cytokines acts as biomarkers in the pathophysiology of psoriasis<sup>4</sup>.

### Treatment

Topical Therapy includes corticosteroids, anthralin etc, Systemic agents includes Cyclosporine etc, phototherapy includes PUVA, UVB; Herbal treatment and Homeopathic treatment.

### Marketed Drugs

Zoratame (25 mg), Silrox, Lobate-M, Graftin(25mg, 100mg), Dosefil, Resol and Vit. D derivatives etc.

### Models used in the study of Psoriasis<sup>5</sup>

1. Spontaneous mutation
2. Genetically engineered rodents
3. Immunological reconstitution approach
4. Xenotransplantation
5. Imiquimod Model

### qRT-PCR

The level of cytokinin was measured by PCR.

### Application of Drug (Karanjin oil)

Once the physiological parameters confirmed the successful induction of psoriasis like lesions on the mice. The oil was applied on the lesions of the standard

group and at the same time vanishing cream on the lesions of the test everyday for 1 week.

### Cytokine measurement

After 8 days, blood samples from the lesions of mice of all the groups were taken and on them PCR was performed to check the concentration of cytokines (IL-1 $\beta$ , IL-12, IFN- $\gamma$  and TNF- $\alpha$ ) in the mice blood.

## RESULTS AND DISCUSSION:

### PCR Test

Inflammatory mediators like cytokines act as Biomarker in the pathophysiology of Psoriasis. The levels of cytokines were checked in both controlled and standard. As shown in the Table, it was observed that the levels of IL-1 $\beta$ , IL-12, IFN- $\gamma$  and TNF- $\alpha$  was less and close to normal in the test and that of controlled and standard was very high.

**Table 1:** Cytokine level in standard, control and test group

Cytokine (pg/ml)	Standard group	Control group	Test group
IL-1 $\beta$	305.02 $\pm$ 11.67	312.32 $\pm$ 9.65	130.20 $\pm$ 17.00
IL-12	89.43 $\pm$ 17.77	95.21 $\pm$ 14.98	76.04 $\pm$ 10.00
IFN- $\gamma$	32.87 $\pm$ 9.01	35.88 $\pm$ 8.29	25.07 $\pm$ 2.05
TNF- $\alpha$	934.66 $\pm$ 155.35	978 $\pm$ 145.33	578.22 $\pm$ 107.66

All value represents the mean as well as S.D. (n = 6).

## CONCLUSION:

During the study of Karanjin it was found that it gives the positive results and it was established that karanjin cured the psoriasis like lesions on mice skin which was induced by imiquimod.

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